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| To: | Examiner Robert M. Timblin | From: | Dan C. Hu |
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| Serial No.: | 10/706,656 | Our Re: | 11166 (NCR.0114US) |

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RECEIVED IN THE UNITED STATES PATENT AND TRADEMARK OFFICEAttorney Docket No.: 11166 (NCR.0114US)
Date: November 15, 2007

DCH/gky

Applicant(s): HONG GUI ET AL.
Serial No.: 10/706,656
Filing Date: November 12, 2003
Title: MAINTAINING VIEWS OF CUBE-BASED OPERATIONS IN A DATABASE SYSTEM

1. Reply Brief.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| Applicants: | Hong Gui et al. | § | Art Unit: | 2167 |
| | | § | | |
| Serial No.: | 10/706,656 | § | | |
| | | § | Examiner: | Robert M. Timblin |
| Filed: | November 12, 2003 | § | | |
| | | § | | |
| For: | Maintaining Views of | § | Atty. Dkt. No.: | 11166 (NCR.0114US) |
| | Cube-Based Operations in a | § | | |
| | Database System | § | | |

Mail Stop Appeal Brief-Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

REPLY BRIEF

Sir:

The following sets forth Appellant's Reply to the Examiner's Answer dated September 18, 2007.

A. REPLY TO EXAMINER'S ANSWER REGARDING CLAIMS 1, 2, 4, 5, 12, 13, 14, AND 23.

In the Examiner's Answer, the Examiner continued to make erroneous assertions with respect to Cochrane. On pages 26-27 of the Examiner's Answer, the following statement was made:

The Examiner submits that as a data cube is hierarchical (paragraph 0064), that changes in one dimension (a result set) of a data cube will affect another dimension (a second result set) in the same data cube to ensure data integrity. Cochrane discloses (paragraph 0035, last 4 lines) that materialized views can be maintained *incrementally* by processing the updated rows and visiting the underlying tables to recompute some portions of the materialized query. Cochrane further states (paragraph 0090, last 6 lines) that a change (insert/update/delete) of a single row of the base data [table] can affect multiple

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| Date of Deposit: | <u>November 15, 2007</u> |
| I hereby certify that this correspondence is being facsimile transmitted to the U.S. Patent Office (Fax No. (571) 273-8300) on the date indicated above. | |
| <u>Ginger Young</u> | |
| Ginger Young | |

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rows in the summary table. The notion of applying incremental changes to a summary table (i.e. containing a data cube) suggests that a change in one result set of the data cube will reflect changes onto a second set of the data cube.

The continued reference to ¶ [0035] of Cochrane does not remedy the fact that Cochrane does not disclose the subject matter of claim 1. The incremental maintenance of materialized views mentioned in the last four lines of ¶ [0035] of Cochrane was explained in detail in the Appeal Brief on pages 5 and 6. As discussed in the Appeal Brief, the incremental maintenance of materialized views in Cochrane is completely different from the subject matter of claim 1, which recites updating the second result set (for a group-by on a second grouping set) by computing a change to the second result set **based on the change to the first result set (for a group-by on a first grouping set)**, where both the first result set and the second result set are contained in the same view that contains results of a cube-based operation on at least one base table.

The quote from the Examiner's Answer above also refers to ¶ [0090], last six lines, of Cochrane, which refers to the fact that the change of a single row of a base table can affect multiple rows in the summary table. As discussed in detail in the Appeal Brief, changes in the base table that affect rows of a summary table, as described in Cochrane, does not provide any teaching of the claimed subject matter. The specific teaching of Cochrane is that modifications to the base tables cause incremental maintenance of summary tables (views) by computing a "raw delta". Cochrane, ¶ [0093]. Such incremental maintenance of summary tables (views) based on the raw delta as described in Cochrane is different from the updates recited in claim 1.

As further purported support for the rejection, the Examiner cited ¶ [0102] of Cochrane, which refers to referential integrated constraints such as "ON DELETE CASCADE". This teaching ¶ [0102] of Cochrane refers to how creation of delta streams are **triggered**. This

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teaching in ¶ [0102] of Cochrane does not change the fundamental detailed discussion of incremental maintenance of summary tables described elsewhere in Cochrane, and explained in detail in the Appeal Brief.

In view of the foregoing, and in view the arguments made in the Appeal Brief, reversal of the final rejection of the above claims is respectfully requested.

B. CONCLUSION

In view of the foregoing, and in view of the arguments presented in the Appeal Brief, reversal of all final rejections is respectfully requested.

Respectfully submitted,

Date: Nov. 15, 2007



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